AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application. Please amend claims 18, 30, and 31, as follows:

1-17. (Cancelled).

18. (Currently Amended) A packet and optical routing equipment, comprising:

an optical input suitable for receiving input multiplexed signals;

an optical output suitable for supplying output multiplexed signals;

a non-packet optical port suitable for exchanging branch non-packet signals;

a packet optical port suitable for exchanging branch packet signals;

an optical forwarding and multiplexing stage coupled between said optical input and said optical output;

a packet forwarding stage connected between said optical packet port and said optical forwarding and multiplexing stage~~, the packet forwarding stage comprising a packet and optical control plane configured to generate control signals for said optical input and output, said optical forwarding and multiplexing stage, said interface converter, said electric switching unit, and said non-packet and packet optical/electric converters~~;

a non-packet optical/electric converter connected to said non-packet optical port and suitable for converting said branch non-packet signals into and from non-packet electric signals;

a packet optical/electric converter connected between said optical packet port and said packet forwarding stage, said packet optical/electric converter being suitable for converting said branch packet signals into and from electric packet signals exchanged with said packet forwarding stage;

an electric switching unit connected to said non-packet optical /electric converter and said packet forwarding stage for exchanging therewith said electric non-packet and packet signals; and

an interface converter coupled between said electric switching unit and said optical forwarding and multiplexing stage for converting said electric non-packet and packet signals into and from optical signals supplied to and from said optical forwarding and multiplexing stage,

wherein the packet forwarding stage comprises a packet and optical control plane configured to generate control signals for said optical input and output, said optical forwarding and multiplexing stage, said interface converter, said electric switching unit, and said non-packet and packet optical/electric converters.

19. (Previously Presented) The equipment according to claim 18, wherein said electric switching unit has a first plurality of input/outputs connected to said non-packet optical/electric converter, a second plurality of input/outputs connected to said packet forwarding stage and a third plurality of input/outputs connected to said interface converter, said electric switching unit being configured to connect a variable number of input/outputs of said first and second plurality to said third plurality of input/outputs.

20. (Previously Presented) The equipment according to claim 18, wherein said optical input comprises a first and a second input and said optical output comprises a first and a second output; said optical forwarding and multiplexing stage comprising a first set of cascade connected optical add/drop multiplexers and a second set of cascade connected optical add/drop multiplexers.

21. (Previously Presented) The equipment according to claim 20, wherein said first set of optical add/drop multiplexers is coupled between said first input and said first output and said second set of optical add/drop multiplexers is coupled between said second input and said second output.

22. (Previously Presented) The equipment according to claim 20, wherein said optical add/drop multiplexers are of a tunable type.

23. (Previously Presented) The equipment according to claim 20, wherein said interface converter comprises a plurality of transceivers, each transceiver being connected to a respective one of said optical add/drop multiplexers.

24. (Previously Presented) The equipment according to claim 23, wherein each said transceiver comprises a transmitter laser of tunable type, a gray receiver and an electronic unit.

25. (Previously Presented) The equipment according to claim 18, wherein said packet forwarding stage comprises:

a packet forwarding module, coupled between said electric switching unit and said packet optical /electric converter.

26. (Previously Presented) The equipment according to claim 25, wherein said optical input and output comprise channel termination units suitable for extracting and/or adding control signals having a different wavelength with respect to said input and output multiplexed signals.

27. (Previously Presented) The equipment according to claim 26, wherein said channel termination units are connected with said packet forwarding module for exchanging said control signals therewith.

28. (Previously Presented) The equipment according to claim 25, wherein said packet and optical control plane are suitable for generating control signals for said optical forwarding and multiplexing stage and wherein said optical forwarding and multiplexing stage is configured to route first selected of said input multiplexed signals toward said optical output to extract second selected of said input multiplexed signals toward said interface converter and to add said optical signals to said output multiplexed signals.

29. (Previously Presented) The equipment according to claim 18, wherein said optical input comprises a plurality of inputs and said optical output comprises a plurality of outputs and wherein said optical forwarding and multiplexing stage comprises an optical switching unit connected to said interface converter and a

multiplexing/demultiplexing unit connected between said optical switching unit and said inputs and outputs.

30. (Currently Amended) An optical network of wavelength multiplexing type, comprising a plurality of packet and optical routing equipment and a plurality of optical connections extending between pairs of packet and optical routing equipment, each said packet and optical routing equipment comprising:

an optical input connected to a first of said optical connections and receiving input multiplexed signals;

an optical output connected to a second of said optical connections and supplying output multiplexed signals;

a non-packet optical port exchanging branch non-packet signals;

a packet optical port exchanging branch packet signals;

optical forwarding and multiplexing stage coupled between said optical input and said optical output;

a packet forwarding stage connected between said optical packet port and said optical forwarding and multiplexing stage~~, the packet forwarding stage comprising a packet and optical control plane configured to generate control signals for said optical input and output, said optical forwarding and multiplexing stage, said interface converter, said electric switching unit, and said non-packet and packet optical/electric converters~~;

each said packet and optical routing equipment comprising:

a non-packet optical /electric converter connected to said non-packet optical port and converting said branch non-packet signals into and from non-packet electrical signals;

a packet optical/electric converter connected between said optical packet port and said packet forwarding stage, said packet optical/electric converter converting said branch packet signals into and from electric packet signals exchanged with said packet forwarding stage;

an electric switching unit connected to said non-packet optical/electric converter and said packet forwarding stage for exchanging therewith said electric non-packet and packet signals; and

an interface converter coupled between said electric switching unit and said optical forwarding and multiplexing stage for converting said electric non-packet and packet signals into and from optical signals supplied to and from said optical forwarding and multiplexing stage,

wherein the packet forwarding stage comprises a packet and optical control plane configured to generate control signals for said optical input and output, said optical forwarding and multiplexing stage, said interface converter, said electric switching unit, and said non-packet and packet optical/electric converters.

31. (Currently Amended) A method for packet and optical signal routing, comprising:

receiving, at an optical forwarding and multiplexing stage, input multiplexed optical signals;

receiving, at a non-packet optical/electric converter, branch non-packet optical signals;

receiving, at a packet optical/electric converter, branch packet optical signals;

forwarding, by the optical forwarding and multiplexing stage, first selected of said input multiplexed optical signals as output multiplexed optical signals;

extracting second selected of said input multiplexed optical signals and adding said branch non-packet and packet optical signals to said output multiplexed optical signals;

said adding said branch non-packet and packet optical signals to said output multiplexed optical signals comprising:

converting~~, by a respective one of said non-packet and packet optical/electric converters,~~ said received branch non-packet and packet optical signals into non-packet and packet electric signals;

switching, by an electric switching unit, said non-packet and packet electric signals according to available resources;

converting, by an interface converter, the switched non-packet and packet electric signals into optical signals; and

adding, by the optical forwarding and multiplexing stage, said optical signal to said output multiplexed signals;

wherein the extracting second selected of said input multiplexed optical signals and adding said branch non-packet and packet optical signals to said output multiplexed optical signals are executed in a single packet and optical routing node;

generating, at a packet and optical control plane, control signals for an optical input and output, the optical forwarding and multiplexing stage, the interface converter, the electric switching unit, and the non-packet and packet optical/electric converters.

32. (Previously Presented) The method according to claim 31, further comprising:

converting said second selected of said input multiplexed signals into extracted electric signals;

switching said extracted electric signals to obtain first and second electric signals;

converting said first electric signals into branch non-packet optical signals;

sending said branch non-packet optical signals to a non-packet destination;

converting said second electric signals into branch packet optical signals; and

routing said branch packet optical signals toward a packet destination.

33. (Previously Presented) The method according to claim 31, comprising:

generating control signals in a first packet and optical routing equipment;

transmitting said control signals onto a first optical connection line;

receiving said control signals at a second packet and optical routing equipment;

checking the destination of said control signals at a second packet and optical routing equipment and, if said second packet and optical routing equipment is not a destination equipment,

routing said control signals onto a second optical connection line toward a further packet and optical routing equipment, and

repeating the previous step at the further packet and optical routing equipment until a destination packet and optical routing equipment for the control signals is reached, so as to establish a path for said control signals including the packet and optical routing pieces of equipment between said first and said destination packet and optical routing equipment;

checking a traffic condition to detect a low or high traffic condition for said branch packet signals; and

in case of low traffic condition, implementing a base connectivity for said branch packet optical signals including the packet and optical routing pieces of equipment between said first and said destination packet and optical routing equipment; and

in case of high traffic condition, implementing a direct connectivity for said branch packet optical signals between said first and said destination packet and optical routing equipment.

34. (Previously Presented) The method according to claim 33, wherein said implementing a base connectivity comprises transmitting said branch packet optical

signals together with said control signals from said first to said destination packet and optical routing equipment.

35. (Previously Presented) A method for packet and optical signal routing, comprising:

receiving input multiplexed optical signals;

receiving branch non-packet optical signals;

receiving branch packet optical signals;

forwarding first selected of said input multiplexed optical signals as output multiplexed optical signals;

extracting second selected of said input multiplexed optical signals and adding said branch non-packet and packet optical signals to said output multiplexed optical signals;

said adding said branch non-packet and packet optical signals to said output multiplexed optical signals comprising:

converting said received branch non-packet and packet optical signals into non-packet and packet electric signals;

switching said non-packet and packet electric signals according to available resources;

converting the switched non-packet and packet electric signals into optical signals; and

adding said optical signal to said output multiplexed signals;

generating control signals in a first packet and optical routing equipment;

transmitting said control signals onto a first optical connection line;

receiving said control signals at a second packet and optical routing equipment;

checking the destination of said control signals at a second packet and optical routing equipment and, if said second packet and optical routing equipment is not a destination equipment,

routing said control signals onto a second optical connection line toward a further packet and optical routing equipment, and

repeating the previous step at the further packet and optical routing equipment until a destination packet and optical routing equipment for the control signals is reached, so as to establish a path for said control signals including the packet and optical routing pieces of equipment between said first and said destination packet and optical routing equipment;

checking a traffic condition to detect a low or high traffic condition for said branch packet signals; and

in case of low traffic condition, implementing a base connectivity for said branch packet optical signals including the packet and optical routing pieces of equipment between said first and said destination packet and optical routing equipment; and

in case of high traffic condition, implementing a direct connectivity for said branch packet optical signals between said first and said destination packet and optical routing equipment.

36. (Previously Presented) The method according to claim 35, wherein said implementing a base connectivity comprises transmitting said branch packet optical signals together with said control signals from said first to said destination packet and optical routing equipment.